

CALIFORNIA INTEGRATED OCEAN OBSERVING PROGRAM

Synthesis for Coastal Ocean Observing Products

REQUEST FOR SERVICES

Through the [Ocean Protection Council](#) (OPC) and the [State Coastal Conservancy](#) (Conservancy), the Ocean Science Applications (OSA) and the [California Ocean Science Trust](#) (OST) seek the services of a consultant firm or team to develop a clear vision for how the ocean observing system in California can better support ocean management decisions made by resource and environmental regulatory agency managers. To take full advantage of the potential of ocean observing, managers and scientists need to establish well-defined objectives for designing valuable information products. Unfortunately, the relationship between ocean observation technologies and on-the-ground management needs is not well understood by state and federal environmental and resource agency managers, members of the California state legislature or members of Congress. The ocean observation community must be able to clearly articulate the services these systems can provide and how they will produce information in a more effective, efficient, and cost effective manner. To that end, the document to be produced as the end product of the proposed services should provide a concise and comprehensive description of the ways in which investments in ocean observing technologies have and will result in the better protection of key resources, better compliance with environmental laws and regulations, or more reliable prediction and forecasting of environmental response to change.

This work will build on the findings of a recent workshop sponsored by the Coastal States Organization (CSO), *Making Use of Ocean Observing Systems: Applications to Marine Protected Areas and Water Quality*:

<http://www.cencoos.org/California-Workshop-Report-FINAL.pdf>

Consultants will prepare a report that clearly identifies important ocean and coastal management issues facing that State of California and how those issues can be addressed in a more efficient and cost effective manner through the use of ocean observation system information. The findings of the recent CSO workshop report can provide some initial guidance regarding water quality and marine protected area (MPA) monitoring¹, but the proposed analysis should also address, at a minimum, harmful algal blooms (HABs), sediment management, ocean energy, salmon recovery, desalination, and maritime safety. The goal is to provide a clear and easily understandable description of these issues and how resource

¹ The CSO workshop reinforced the need to provide timely information for assessing the condition of MPAs, identifying emerging threats, and improving our understanding of marine ecosystems. However, given the breadth of MPA monitoring requirements, the Ocean Science Trust's Marine Protected Areas Monitoring Enterprise (Enterprise) has initiated a process to identify the information that will be most useful to inform management decisions. Consultants should work in collaboration with the Enterprise and focus specifically on how observing systems can be useful tools in MPA management.

management needs will be more effectively addressed using observing technologies. The document will be used to guide future investments in ocean observing, while developing current awareness among management and industry regarding the value of the [Integrated Ocean Observing System](#) (IOOS) and the Regional Associations ([Central and Northern Coastal Ocean Observing System](#) and [Southern California Coastal Ocean Observing System](#)) as centers of expertise for creating and delivering valuable information products to improve ocean management. Information products identified through this process are intended to help state and federal resource managers more effectively comply with or enforce environmental laws and policies.

The primary role of the consultant(s) will be to facilitate the development of a list of ocean and coastal management issues through an iterative process with the State, OST and the RAs. Initially, consultants will synthesize the major needs of managers for observing products in the issue areas mentioned previously. Based on a clear understanding of needs (and of all existing ocean observing capabilities), the consultant will then develop straw-man proposals for each issue area to elicit reaction and input from both scientists and managers. Synthesis of these individual proposals should result in a final report that is easily understandable by high-level decision makers, and include:

- An executive summary—geared to a non-technical audience—that clearly articulates the importance and relevance of ocean observing systems, describes the relationship between ocean observing technologies to on-the-ground management needs, and identifies how observing systems will produce information to address these on-the-ground management needs in a more effective, efficient, and cost effective manner. The executive summary will be published as a separate document and used for education and outreach.
- A more detailed document addressing, by topic area, the specific scientific and technical recommendations for developing an integrated ocean observing system in California. This document must clearly identify how existing observing assets can be better applied to resource management and how new investments in these technologies will yield clear, tangible, and cost effective results.
- Appendices containing one-page briefing papers (fact sheets) for each of the issue areas covered in the report. These briefing papers should be made in consultation with the RAs and highlight examples of successful applications of observing data.

This report will create the framework for a communication strategy between the RAs, the end-users, and the funding agencies that will guide the development and future financing of an integrated observing system that directly serves ocean and coastal management needs.

The consultant(s) will work closely with the OSA, OST, and OPC, and others as well as the two RAs (SCCOOS and CeNCOOS). The users of the observing systems will be involved throughout the process.

The consultants will be working to help achieve a relevant and integrated ocean observing system along the CA coast to address water quality and ecosystem health in compliance with,

among others, the following laws and regulations: the Coastal Conservancy's enabling legislation, California Public Resources Code (PRC), Division 21, Section 31220, Chapter 5.5; the Ocean Protection Act, PRC Division 26.5, Section 35510, Chapter 1; the Marine Life Protection Act (Chapter 10.5 of the California Fish and Game Code, Sections 2850 to 2863), the Clean Water Act (33 U.S.C. §§ 1251 et seq.) Porter-Cologne Water Quality Control Act, (California Water Code §§13000, et seq.), the federal and California Endangered Species Acts, (respectively, 16 U.S.C. §§ 1531 et seq. and California Fish and Game Code §§2050 et seq.), Coastal Zone Management Act (16 U.S.C. §§ 1451 et seq.); Oceans Act of 2000 (P.L. 106-256); and the resulting US Commission on Ocean Policy report "An Ocean Blueprint for the 21st Century,"; the Estuaries and Clean Waters Act (33 U.S.C. §§ 2901-2909); Water Resources Development Act (33 USC §§ 2201) P.L. 106-53; and the Ports and Waterways Safety Act (33 U.S.C. §§ 1221 et seq.).

Interested parties should submit a statement of qualifications and a written statement of approach, no longer than 10 pages. ***Submittals must be received by 5 p.m. on Friday, August 11, 2008.*** Three copies of the submittal should be sent to:

Sheila Semans
State Coastal Conservancy
PO Box 1173
Mendocino, CA 95460
ssemans@scc.ca.gov

1. Background

Timely, sustained, and integrated information on ocean resources is key to many of California's coastal initiatives including, but not limited to, the [Ocean Action Plan](#), the [Ocean Protection Council Strategic Plan](#), the [West Coast Governor's Agreement on Ocean Health](#), the [Marine Life Protection Act](#) (MLPA), [CA Regional Sediment Master Plan](#), and the [Marine Life Management Act](#). California's investment in the [Coastal Ocean Current Mapping Program](#) (COCMP) has strategically deployed high-frequency radar technology to provide statewide information on surface currents in real time. This technology has been used successfully to monitor municipal discharges and assist with state and federal response to oil spills. The State also established Ocean Sciences Applications to integrate COCMP into a larger observing network, to help articulate California resource management priorities for ocean observing, and to work with the two IOOS Regional Associations, [CeNCOOS](#) and [SCCOOS](#), to create one integrated ocean monitoring system for California.

The [Integrated Ocean Observing System](#) (IOOS) is a multidisciplinary system designed to provide ocean and coastal data in formats, scales, and rates required by users. Currently, ocean and coastal data are collected by numerous federal, state, local and private entities. IOOS is gathering these disparate data sources into an integrated system, providing users access to data from all sources. In addition, IOOS is deploying new technology to fill in the gaps in measurements and to ensure that users have access to the best available information. IOOS is a continually evolving program that is designed to be flexible and respond to new technology and user needs. The national program consists of the contributions of federal agencies, coordinated through an interagency office (known as Ocean.US see: <http://www.ocean.us/>), and a network of regional programs designed to meet the diversity of users around the country, including the Great Lakes. This approach creates a regionally distributed organization of networked observing systems (the RAs) coordinated by a common framework of data standards and formats. This design ensures that information products are sensitive to regional management needs while adhering to protocols that enable large-scale modeling and forecasting. The Joint Ocean Commission has defined deployment of an ocean observing system a national priority in their top ten recommendations because an ocean observing system can provide managers and decision makers with the capacity to respond to a range of management issues using robust data as a predictive tool or to track events in real time.

http://www.jointoceancommission.org/resource-center/1-Reports/2007-07-01_Oceans_and_Climate_Change_Concept_Paper.pdf

Due to this nationally recognized priority, improved ocean monitoring has been endorsed in the Ocean Protection Council Strategic Plan, the West Coast Governor's Agreement, and programs addressing the science needed to address management in large marine ecosystems:

http://ims.ucsc.edu/CCEBM/public_detailspage.html
<http://westcoastoceans.gov/>

http://resources.ca.gov/copc/strategic_plan.html

San Francisco's recent oil spill, this year's unprecedented occurrences of harmful algal blooms, implementation of a network of new marine protected areas, permit applications for siting and developing wave energy projects, and the recent unprecedented salmon population crash have highlighted the need to better monitor coastal waters. Integrated and sustained ocean observing capability is needed to improve our management of resources (e.g. coastal discharges and more timely beach closures), better assess the effectiveness of our management actions (e.g. MPAs placement/regulations), help distinguish between natural variability in ocean conditions and change resulting from human behavior (e.g. HABs occurrence, salmon abundance), and improve our ability to forecast ecosystem response to change (ranging from small scale wave energy projects to large scale issue like sea level rise).

However, ocean and coastal observations can directly serve the needs of ocean and coastal environmental and resource managers only when those needs are clearly articulated. A workshop was held in September, 2007 to identify the management needs for water quality and monitoring marine protected areas (see link above). However, this information, and information on other applications such as sediment transport, ocean energy and boating safety, needs to be further understood, clearly articulated, and incorporated into the design of the state's ocean and coastal observing system. Developing such a design requires a solid understanding of how managers use information—for what purposes, on what scales, in what format. Determining what technology might be applied to a specific management need should come as a second step. For example, regarding the newly established marine protected areas along the central coast, in order to determine their effectiveness at meeting the goals of the MLPA, a continued dialogue is needed between scientists and managers to identify what information is needed, to understand how information will be used, and to establish reasonable options for addressing those needs.

Coastal ocean observing is not only about harnessing new state-of-the-art technology; it includes all observations such as traditional sampling by hand from shore and boats. More importantly, ocean observing is about integrating disparate data sources so people can access and combine the data they need, no matter what the source.

The consultant will work closely with OSA, OST, and the two RAs to create a strategy for developing the critical ocean observing information products needed to support better ocean management. The consultant will be expected to:

- Inventory the State's current observing capabilities (with data provided by RAs);
- Articulate the key management needs that are or could effectively be addressed by ocean observing systems;
- Identify by management topic what information products could be created now to better meet resource management needs, and identify what steps are necessary to produce those products;
- Identify gaps in information currently being collected;

- Develop clear recommendations by management topic for information products and observing assets critical to improve ocean management and regulation, including estimated budget (short and long-term costs) and timelines;
- Clearly articulate how any future ocean observing assets being recommended will address management priorities (or multiple management priorities);
- Create a straw-man proposal for future ocean observing needs that is reviewed in the management and scientific communities;
- Develop a final report that clearly identifies important ocean and coastal management issues facing that State of California and how those issues can be addressed in a more efficient and cost effective manner through the use of ocean observation systems. This report must be understandable by high-level decision makers and include:
 - An executive summary
 - A more detailed document addressing, by topic area, the specific scientific and technical recommendations for developing an integrated ocean observing system in California.
 - Appendices containing one-page briefing papers (fact sheets) describing success stories from each RA.

2. Goal

The ultimate goal of this project is to provide clear, non-technical descriptions of ocean management issues and environmental and resource protection regulations important to California and how they can be more efficiently and effectively addressed using ocean observing technologies. Critical to the success of this effort will be the identification of information products that are most needed by the management and user communities. Additionally, success stories should reflect consistency with the OPC Strategic Plan objectives and the West Coast Governor's Agreement. This will require consultants to first work with state agencies and other stakeholders to more specifically articulate environmental regulation and resource management information needs. The final report will be used to inform policy makers on the benefits of ocean monitoring as well as serve as the basis to leverage future funds for ocean observing projects.

3. Scope of Work

Consultants will prepare an ocean observing implementation strategy, starting with the existing capacity and identifying critical phases for the incremental growth of the system based on the needs of key users. Outreach to end users will be continuous throughout the life of the project, and may include brainstorming meetings, meetings with resource agencies, workshops with multiple end users, or focused retreats. Consultants should at a minimum:

- Identify the key user groups (examples of relevant user groups include the Marine Protected Areas Monitoring Enterprise, the Southern California Coastal Water Research Project, the Coastal Sediment Working Group, the Department of Fish and Game [Office of Spill Prevention and Response](#), the State Water Control Resource Board and the nine California Regional Water Quality Control Boards).

- Conduct a series of small meetings with experts and user groups to determine in more detail:
 - What management decisions are being improved by ocean monitoring data and how the technology is being used (e.g., the use of surface current maps in oil spill response efforts)?
 - What management decisions could be improved with existing monitoring data (e.g. the placement of clean dredge spoils in areas that could nourish local beaches)?
 - What management decisions could be improved with new monitoring data (e.g. the potential placement of, or impacts from, wave energy projects)?

Analysis of Existing Conditions

A preliminary report and database summarizing existing information about current ocean observing assets should be provided within two months. Information on existing assets will be provided by the RAs but will need to be compiled into one source. Using that information, consultants will develop an analysis of existing conditions and available data.

Identification of Management Needs

Consultants should initiate an iterative process to articulate the specific management needs related to, at a minimum, the 7 focus areas (water quality [including HABs], MPA monitoring, sediment management, ocean energy, desalination, salmon recovery, and maritime safety). Both RAs have completed user-needs evaluations that will provide a foundation for this work. However, in some areas, such as the monitoring of MPAs where program development being defined, there will be a need to develop new frameworks and approaches to monitoring.

Gap Analysis

Based on the analysis of existing conditions, and the identified needs of key end user groups, the consultant will characterize opportunities and constraints related to ocean observing assets that exist today. This analysis should recommend data integration strategies and/or product development needs that could be achieved in the short term, and describe an approach to implementing those recommendations.

Additionally, gaps in information should be identified and additional assets recommended that could improve ocean management in the focus areas. OSA, OST and the two RAs will be important resources for this analysis. Highest priority should be given to infrastructure that is crosscutting to multiple issues and cost effective. A preliminary report should be provided in three months that identifies key questions and opportunities, and makes initial recommendations on high priority investments.

Straw-man Proposal

Based on an understanding of needs and the existing observing capabilities, the consultant will develop a straw-man proposal that translates user needs into functional requirements for the observing system design. This initial proposal should include a concise statement of managers' needs; an outline of feasible options for meeting those needs; and a reasonable plan for the

ocean observing network in the State to address these multiple needs. Recommendation for additional observing assets should be prioritized, with higher priority given to assets that meet multiple management objectives. Once the proposal is accepted by OSA and OST staff, it will be circulated to the management and scientific communities for review.

Final Report Generation

All previous pieces of the project should be brought together in a comprehensive plan that clearly articulates the benefit of ocean monitoring. This report should include an executive summary suitable for informing decision-makers of the importance and relevance of coastal observing and a more detailed document addressing the scientific and technical aspects of a phased build out of an integrated ocean observing system. A draft report should be provided by the end of month seven. Once completed, this draft plan will be circulated for review to a group of stakeholders provided to the consultant team by OSA and OST staff.

Advisory Committee

In conducting this project, consideration should be given to establishing a small and agile advisory committee with observing scientists from the two RAs and State managers to:

- identify the user groups to be consulted to help inform the process,
- provide guidance to the consultant(s) on existing information, and
- evaluate draft proposals, leading to the development of a final report.

4. Schedule Milestones

Start work	August 2008
Existing Conditions Report	October 2008
Gap Analysis	November 2008
Straw-man Proposal	January 2009
Final Report	April 2009

5. Budget Estimate

Funding will be determined based on the award scope and approach.

6. Submittal Guidelines and Selection Criteria

Interested firms/teams should submit to the Conservancy a statement of qualification and a written statement of approach. Proposals must include identification of members of the firm/team, a tentative schedule, and a proposed budget broken down by task. The proposal should describe the consultants' approach to developing the phased implementation plan. If the proposed approach differs from the scope of work outlined in this solicitation, please provide explanation of proposed changes. In addition, firms/teams should provide:

- a. Curriculum vitae of each member of the firm/team, identifying relevant education and experience (see below).
- b. The number of hours and percent of time each team member will devote to each task.
- c. Name and contact information of three professional references for the team/firm.
- d. Any potential conflicts of interest that the firm/team may have in carrying out the tasks described herein.

Potential contractors will be ranked based on the following criteria:

- 1) Demonstrated competence in the areas of ocean and coastal resource management, environmental protection, and ocean observing in California as well as nationally, including:
 - the firm/team's past experience with similar projects;
 - the education and experience of key personnel, including principals to be assigned and the proposed level of their participation;
 - the firm/team's capability to adequately analyze the project;
 - the firm/team's ability to meet the project schedule;
 - the longevity of the firm(s) and amount of staff turnover;
 - and the nature and quality of the firm(s)'s past completed work;
- 2) Demonstrated ability to translate scientific analysis into information for a non-technical audience;
- 3) Specialized qualifications for the services to be performed, such as experience developing or using ocean observing information products; experience working with state and federal resource management agencies; development of communication strategies; creating non-technical scientific information;
- 4) State-Certified small Business status of the contractor submitting a statement of qualification;
- 5) State-Certified Disabled Veteran Business Enterprise (DVBE) status of the contractor submitting a statement of qualification;
- 6) The "good faith effort" of the contractor to subcontract with D/VBEs as set forth in Public Contract Code Section 10115.

The consultant will be hired under contract to the Conservancy. The Conservancy will attempt to negotiate a contract with the best qualified firm/team at compensation which the Conservancy determines is fair and reasonable to the State of California. If the Conservancy is

unable to do so, negotiation with that firm/team will be terminated and negotiations will then proceed in the same manner with the other firms/teams on the list in order of ranking. If the Conservancy is unable to negotiate a satisfactory contract with any of the selected firms/teams, the Conservancy may select additional firms and continue the negotiation process.

The consultant will be paid for its actual time and expenses up to the amount provided for each task in the final project budget. The consultant should anticipate that ten percent (10%) will be withheld until all work is completed to the satisfaction of the Coastal Conservancy. The Conservancy must also approve all interim work products before payment.

The consultant will also be required to comply with the substantive requirements of the "Standard Provisions", attached.

7. Contact

Questions about the proposal process may be emailed to Sheila Semans, State Coastal Conservancy, ssemans@scc.ca.gov. No phone calls please.

8. Relevant Links

California Ocean Observing Program: A Recommendation for Supporting State Ocean Observing Efforts: http://resources.ca.gov/copc/6-8-06_meeting/0606 OPC Book/0606COPC07 CA Ocean Observing Program MEMO.pdf
OPC Strategic Plan: http://www.resources.ca.gov/copc/strategic_plan.html